

Abstract

A data storage system that has one or more IDE disk drives, each IDE disk drive connected to a USB to IDE controller, and the USB to IDE controllers are connected to one or more USB controllers. Within the data storage system (array), USB to IDE controllers are integrated into disk drive carriers. The logical interface presented to the storage array is strictly USB, and the insertion or removal of the drive carrier corresponds directly to USB device insertion/removal from the USB bus. Hubs can be used to associate up to 127 USB devices to a single USB controller, and multiple USB controllers may be utilized to increase overall system. Using the simple four wire interface of USB and the extend lengths of USB relative to IDE, a passive center plane design for the storage array is made possible by the present invention. Using USB as an internal interconnect allows the use of inexpensive IDE disk drives within a storage array with simplified cabling/signal routing, "hot plugging", and passive center plane.